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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TAKEO TANAAMI
and KAZUHISA FUKUSHIMA

Appeal 2009-013778
Application 10/716,417
Technology Center 1700

Before EDWARD C. KIMLIN, CHARLES F. WARREN, and
CATHERINE Q. TIMM, *Administrative Patent Judges*.

TIMM, *Administrative Patent Judge*.

DECISION ON APPEAL¹

I. STATEMENT OF CASE

Appellants appeal under 35 U.S.C. § 134 from the Examiner's
decision to reject claims 2 and 4-13 under 35 U.S.C. § 103 as unpatentable

¹ The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the "MAIL DATE" (paper delivery mode) or the "NOTIFICATION DATE" (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

over Christian (US 4,708,931, Nov. 24, 1987) in view of Schembri (US 2004/0087033 A1, May 6, 2004), Appellants' admitted prior art, Wilding (US 2006/0223166 A1, Oct. 5, 2006), Anderson (US 2005/0202504 A1, Sep. 15, 2005) and Childers (US 2004/0086872 A1, May 6, 2004) and claims 19-25 under 35 U.S.C. § 103 as unpatentable over the prior art as applied to claims 2 and 4-13 and further in view of McGarry (US 6,642,046 B1, Nov. 4, 2003). We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

Appellants' invention relates to a biochip cartridge, which stabilizes the feeding of blood or solution to prevent operator contact with the solution and which allows preprocessing to be performed on the cartridge (Spec. 8, first three ¶¶). Claim 2 is illustrative:

2. A biochip cartridge comprising:

a tabular substrate member formed using an elastic material; and

a flexible cover airtightly attached to the surface of said substrate member,

wherein at least a collection area for storing biopolymers, a preprocessing area for applying preprocessing to said biopolymers, a detection area for detecting biopolymers from said preprocessed biopolymers and gaps serving as a flow path for connecting said collection area, said preprocessing area and said detection area are formed in said substrate member, so that biopolymers can be successively transferred from said collection area through said preprocessing area to said detection area, and

wherein said biopolymers are transferred by pressing said cover with a roller-like rigid body and squeezing each gap formed in said substrate member from said collection area through said preprocessing area toward said detection area.

II. DISPOSITIVE ISSUE

The dispositive issue arising from the contentions of Appellants and the Examiner is: does the evidence support the Appellants' view that the Examiner's proposed modification of the teachings of Christian in view of the teachings of the secondary references would not have been obvious to one of ordinary skill in the art? We answer this question in the negative.

III. DISCUSSION

We adopt the Examiner's findings as expressed in the rejections reproduced in the Final Rejection, Answer, and Supplemental Answer as our own and add the additional findings of fact appearing below for emphasis. We note that the findings and analysis presented in the rejections have remained the same from at least the time of the Final Rejection.²

There is no dispute that Christian describes a "parallel-type" device, i.e., reagents move in parallel from chambers 123, 124, and 125 into detection chamber 10 (Br. 6; Christian, Fig. 12). Nor is there any dispute that "series-type" devices were known in the prior art as evidenced by Wilding, Anderson, Childers, and the APA (Br. 6-7). The Examiner finds that "it would have been obvious to alter the arrangement of channels and chambers in the apparatus disclosed by Christian in order to ensure that biopolymers and biopolymer solutions are transferred sequentially from a

² Given the virtual identity of the rejections in the Answers as compared to the Final Office Action and the Examiner's clarification of position in the Answers in response to Appellants' arguments (Ans. 13-14; Supp. Ans. 15), we cannot agree with Appellants that the position in the Examiner's Answer is a new ground of rejection to which Appellants have not been afforded an opportunity to respond (Reply Br. 1-2). Moreover, even if the thrust of the rejection had changed from that of the Final Rejection, Appellants' remedy would have been by way of petition, not appeal. See MPEP § 1207.03(IV).

storage area to a preprocessing area to a detection area to a waste reservoir in a time-differentiated manner” (Final Office Action, at 4; Ans. 6; Supp. Ans. 8). The Examiner states that “[t]his would have been beneficial [i.e., transferring solutions sequentially] because it would have guaranteed that biopolymers are adequately treated to promote increased detection before they are moved into the hybridization area to promote more efficient detection” (Final Rej. 4; Ans. 6-7; Supp. Ans. 8).

Appellants contend that the teachings of the references are not sufficient to show obviousness since (a) modifying the Christian device from the parallel chamber arrangement to the series arrangement would change the principle of operation of the Christian device, (b) such a modification would render the device of Christian unsuitable for its intended purpose, and (c) Christian teaches away from the proposed modification (Reply Br. 7-11). Specifically, Appellants assert that Christian teaches away from the proposed modification and that the proposed modification would render Christian’s chip unsatisfactory for its intended purpose, since Christian requires that solutions be transferred to a detection area selectively and that multiple screenings occur simultaneously, which would not take place in the proposed modification (Reply Br. 8-10).

Christian teaches a chip (card) comprising reservoirs and channels, and a method of using a roller to move materials through those reservoirs and channels, which can be used to test a single small sample simultaneously for the presence of numerous different biologically important substances (Christian, col. 1, ll. 13-16; col. 4, ll. 14-35). The specific materials tested for may be any substances which engage in a binding reaction, such as antigen-antibody, nucleic acid hybridization, or receptor-ligand binding

reactions (Christian, col. 3, ll. 12-16). The Examiner has shown that the secondary references teach that identical reactions, particularly the nucleic acid reactions, may be performed in a similar chip with the reservoirs and channels rearranged as claimed (*see* Ans. 6-7).

Christian teaches that the presence of a microassay rod 10 having multiple reactive substances provides for the simultaneous screening for a plurality of substances, rather than the particular arrangement of reservoirs and channels (Christian, col. 3, ll. 30-42). The Examiner has shown, from the teachings of Wilding and Anderson, that modifying the flow using the arrangements thereof would not affect the ability to perform multiple screenings simultaneously (Ans. 24). Further, this evidence also shows that the arrangements taught by Wilding and Anderson, for example, would allow for sufficient transfer of reactants, wash solutions, etc., in such a manner so as to perform the reactions taught by Christian.

Accordingly, it would have been obvious to one of ordinary skill in the art to use the arrangement of reservoirs and channels taught by the secondary references in the chip of Christian, as to do so would be no more than the predictable use of a known arrangement according to its established functions, specifically for performing the particular binding reactions taught by Christian. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007) (The question to be asked is “whether the improvement is more than the predictable use of prior art elements according to their established functions.”). We find nothing in the teachings of Christian that either teaches away from the proposed modification or to suggest that such a modification would render the chip of Christian unsuitable for the reactions proposed therein.

Appellants' remaining arguments all suggest that one of ordinary skill in the art would not have combined the teachings of Christian, which uses a flexible cover and a roller bar to move materials through a chip, with prior art that moves material in alternative ways, such as by pipeting (McGarry), by pumps (Wilding, Anderson, and Childers), or by rolling a bar onto a bag structure rather than a chip. We disagree.

The Examiner does not rely on the methods of moving materials taught by the secondary references, but rather relies on the flexible cover and roller bar method taught by Christian (Ans. 16). Appellants have provided no reason to suggest that the features taught by the secondary references that are relied upon by the Examiner would be dependent upon the means for moving materials through the devices. One of ordinary skill in the art would have predictable results using the features taught by the secondary references in the chip of Christian despite the alternative means of moving materials taught by the secondary references. *KSR*, 550 U.S. at 416 ("The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.").

IV. CONCLUSION

On the record before us and for the reasons discussed above, we sustain the rejections maintained by the Examiner.

V. DECISION

The decision of the Examiner is affirmed.

VI. TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

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